

REMARKS

Claims 1, 4, 5, 7, and 8 are pending in the present application. Claims 2, 3, and 6 have been cancelled without prejudice or disclaimer to the subject matter contained therein.

Rejection of Claims 1, 4, 5, and 7 under 35 U.S.C. §103

Claims 1, 4, 5, 7, and 8 have been rejected under 35 U.S.C. §103 as being unpatentable over Blackburn et al. ("Development of a High-Power, Water-Cooled Beryllium Target for the Production of Neutrons in a High-Current Tandem Accelerator", CP392 in "Application of Accelerators in Research and Industry", pp. 1293-1296, edited by J.L. Duggan and I.L. Morgan, AIP Press, New York 1997) in view of Lidsky et al. (US Patent 5,784,423). This rejection is respectfully traversed.

In formulating the rejection, the Examiner alleges that Blackburn et al. teaches a cooling system to circulate a coolant through an accelerator to cool a low Z target material. The Examiner further alleges that Blackburn et al. teaches that the cooling system includes a nozzle, a reservoir of coolant; and a heat exchanger.

Lastly, the Examiner alleges that Blackburn et al. teaches a pumping system for serially circulating the coolant from the reservoir through the nozzle to impinge upon the surface of the low Z target material within the accelerator, from the accelerator directly to the heat exchanger, and from the heat exchanger to the reservoir.

These allegations are inconsistent with the actual teachings of Blackburn et al.

The following is an illustration from Blackburn et al.

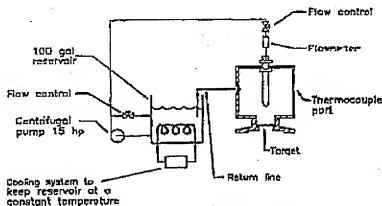


FIGURE 2. Illustration of the complete target cooling system.

As illustrated and taught by Blackburn et al., the coolant leaves the accelerator and is pumped directly into a reservoir, where it is cooled by a cooling system. The cooled coolant, as illustrated and taught by Blackburn et al., is pumped directly back to the accelerator.

In contrast, the presently claimed invention explicitly sets forth that the liquid gallium is serially circulated from a reservoir through a nozzle to impinge upon a surface of a low Z target material within a neutron source assembly. The presently claimed invention further explicitly sets forth that the liquid gallium is serially circulated from the neutron source assembly directly to a heat exchanger. Lastly, the presently claimed invention further explicitly sets forth that the liquid gallium is serially circulated from the heat exchanger to the reservoir.

Blackburn et al. fails to teach a heat exchanger in serial with a reservoir. Moreover, Blackburn et al. fails to teach or suggest the circulation of the coolant through a heat exchanger before it returns to the reservoir.

It is respectfully noted that Blackburn et al. discloses no more than Alger, which the Honorable Board of Appeals held, failed to disclose that the liquid gallium is serially circulated from the neutron source assembly directly to a heat exchanger, and that the liquid gallium is serially circulated from the heat exchanger to the reservoir.

With respect to Lidsky et al., Lidsky et al. discloses (at column 6, line 62 through column 7, line 20 and column 7, lines 43-52) and illustrates (Figures 3 and 4) that the liquid gallium leaving a converter (14) is circulated to a heat exchanger (32A or 32B), for cooling, and then back to the converter (14).

Lidsky et al. fails to teach or suggest a heat exchanger in serial with a reservoir. Moreover, Lidsky et al. fails to teach or suggest the circulation of the coolant through a heat exchanger before it returns to the reservoir.

It is respectfully noted that the Honorable Board of Appeals failed to find that Lidsky et al. teaches or suggests a heat exchanger in serial with a reservoir and/or circulation of coolant through a heat exchanger before it returns to the reservoir.

Thus, the combination of Blackburn et al. and Lidsky et al. fails to teach or suggest a heat exchanger in serial with a reservoir and/or circulation of coolant through a heat exchanger before it returns to the reservoir.

Accordingly, in view of the remarks set forth above, the Examiner is respectfully requested to reconsider and withdraw the rejection under 35 U.S.C. §103.

CONCLUSION

Accordingly, in view of all the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw all the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Matthew E. Connors", is written over a horizontal line.

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